Rhodesite $KHCa_2Si_8O_{19}\cdot 5H_2O$

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. Matted silky fibers, some platy, to 2 mm. In flattened rosettes, irregular segregations, and crusts.

Physical Properties: *Cleavage:* Good, {100}. Hardness = ~4 D(meas.) = 2.27–2.36 D(calc.) = 2.26

Optical Properties: Translucent to transparent. *Color:* White. *Luster:* Silky. *Optical Class:* Biaxial (+). *Orientation:* $X = b$; $Y = a$; $Z = c$. α = 1.501–1.504 β = 1.506–1.508 γ = 1.513–1.518 2V(meas.) = n.d. 2V(calc.) = 68.1°

Cell Data: *Space Group:* $Pmam$. a = 23.42–23.79 b = 6.55–6.59 c = 7.01–7.06 Z = 2

X-ray Powder Pattern: Trinity Co., California, USA.
6.548 (100), 4.386 (47), 5.901 (34), 6.302 (32), 5.032 (28), 2.864 (25), 2.762 (23)

Chemistry:

	(1)	(2)	(3)
SiO_2	61.83	66.27	63.50
Al_2O_3	0.29		
FeO	0.25		
MgO	0.08		
CaO	14.90	15.21	14.81
Na_2O	4.93	0.33	
K_2O	5.28	2.23	6.22
H_2O	12.50	[15.96]	15.47
Total	100.06	[100.00]	100.00

(1) Kimberley, South Africa, average of two analyses. (2) Do.; by electron microprobe, H_2O by difference. (3) $KHCa_2Si_8O_{19}\cdot 5H_2O$.

Occurrence: In a kimberlite pipe (Kimberley, South Africa); in a magadiite deposit localized in altered silicic lavas (Trinity Co., California, USA).

Association: Mountainite (Kimberley, South Africa); magadiite, montmorillonite (Trinity Co., California, USA).

Distribution: In South Africa, at the Bultfontein diamond mine, Kimberley, Cape Province. From near Redding, Trinity Co., California, USA. On the Zeilberg, near Maroldsweisach, Bavaria, Germany. From San Venanzo, near Terni, Lazio, Italy.

Name: For Cecil John Rhodes (1853–1902), British founder of the DeBeers Mining Company, also for Rhodes University, Grahamstown, South Africa, where the mineral was examined.

Type Material: The Natural History Museum, London, England, 1957,18; National Museum of Natural History, Washington, D.C., USA, 114793.

References: (1) Mountain, E.D. (1957) Rhodesite, a new mineral from the Bulfontein mine, Kimberley. Mineral. Mag., 31, 607–610. (2) Gard, J.A., H.F.W. Taylor, and R.A. Chalmers (1957) An investigation of two minerals: rhodesite and mountainite. Mineral. Mag., 31, 611–623. (3) (1958) Amer. Mineral., 43, 624 (abs. refs. 1 and 2). (4) Sheppard, R.A. and A.J. Gude, 3rd (1969) Rhodesite from Trinity County, California. Amer. Mineral., 54, 251–255. (5) Hesse, K.-F. (1979) Die Kristallstruktur von Rhodesit, $H_2K_2Ca_4Si_{16}O_{38}\cdot 10H_2O$ – ein Silikat mit verzweigten Doppelschichten. Zeits. Krist., 149, 155–156 (in German). (6) Hesse, K.-F., F. Liebau, and S. Merlino (1992) Crystal structure of rhodesite, $HK_{1-x}Na_{x+2y}Ca_{2-y}\{lB,3,2^2_\infty\}[Si_8O_{19}]\cdot(6-z)H_2O$, from three localities and its relation to other silicates with dreier double layers. Zeits. Krist., 199, 25–48.